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09/509308

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Signed

Dated 1 October 1998

Patents Form 1/77

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Request for grant of a patent

(See the notes on the back of this form. You can also get an explanatory leaflet from the Patent Office to help you fill in this form)

1. Your reference

   1Q202P1 GB

2. Patent application number
   (The Patent Office will fill in this part)

   9720298.0 25 SEP 1997

3. Full name, address and postcode of the or of each applicant *(underline all surnames)*

   Reckitt & Colman Products Limited
   One Burlington Lane
   LONDON
   W4 2RW

   Patents ADP number *(if you know it)*

   If the applicant is a corporate body, give the country/state of its incorporation

   England

4. Title of the invention

   Improvements in or relating to Organic Compositions.

5. Name of your agent *(if you have one)*

   "Address for service" in the United Kingdom to which all correspondence should be sent *(including the postcode)*

   Martin N Dale
   Reckitt & Colman plc
   Group Patents Department
   Dansom Lane
   HULL
   HU8 7DS
   England

   Patents ADP number *(if you know it)*

6. If you are declaring priority from one or more earlier patent applications, give the country and the date of filing of the or of each of these earlier applications and *(if you know it)* the or each application number

Country	Priority application number *(if you know it)*	Date of filing *(day / month / year)*

7. If this application is divided or otherwise derived from an earlier UK application, give the number and the filing date of the earlier application

Number of earlier application	Date of filing *(day / month / year)*

8. Is a statement of inventorship and of right to grant of a patent required in support of this request? *(Answer 'Yes' if:*

   a) any applicant named in part 3 is not an inventor, or
   b) there is an inventor who is not named as an applicant, or
   c) any named applicant is a corporate body.
   See note (d))

Patents Form 1/77

9. Enter the number of sheets for any of the following items you are filing with this form. Do not count copies of the same document

Continuation sheets of this form	
Description	23 pages ✓
Claim(s)	6 pages ✓
Abstract	2 page ✓
Drawing(s)	-

10. If you are also filing any of the following, state how many against each item.

Priority documents	
Translations of priority documents	
Statement of inventorship and right to grant of a patent *(Patents Form 7/77)*	2 ✓
Request for preliminary examination and search *(Patents Form 9/77)*	1 ✓
Request for substantive examination *(Patents Form 10/77)*	
Any other documents *(please specify)*	Fee Sheet

11. I/We request the grant of a patent on the basis of this application.

Signature [signature] Date 24.9.97

Martin W. Dale

12. Name and daytime telephone number of person to contact in the United Kingdom

Martin N Dale 01482 582905

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Notes

a) *If you need help to fill in this form or you have any questions, please contact the Patent Office on 0645 500505.*

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Improvements in or relating to organic compositions

It has been known for a long time that house dust can trigger allergenic reactions in humans, such as asthma and rhinitis. It was reported, as early as 1928, that it was the dust mites in the dust that were the primary source of the allergenic response but it was only in the 60's that researchers appreciated its significance.

It is believed that the faeces of the house dust mite, *Dermatophagoides farinae* (known as Der-f) and *Dermatophagoides pteronyssinus* (known as Der-p) trigger the immune responses of the body, thereby giving rise to well known allergenic symptoms.

A review of this is given in **Experimental and Applied Acarology, 10 (1991) p. 167-186** in an article entitled "House dust-mite allergen" : A review by L. G. Arlian.

One way to overcome these allergenic response has been to vacuum surfaces, such as carpets, that contain the dust mites and their faeces thoroughly and often, but that is both time consuming (i.e. has to be regularly done if one wants to make an allergenic free environment) and is very dependant on the efficiency of vacuum cleaner and filter bag used e.g. micron filter bag or 2 layer vacuum bags.

An alternative method of creating an allergen-free environment has been to denature the allergen, for example as described in US Patent No. 4,806,526. The

only effective method however of which we are aware is to apply tannic acid to the allergen. However, tannic acid can cause staining, and this is a particularly acute problem for light coloured carpets (e.g. white and light beige carpets) and other textile surfaces as tannic acid leaves a deep brown stain.

Therefore, we have been looking for allergenic denaturants which will not stain susceptible surfaces such as carpets and still deactivate the allergen.

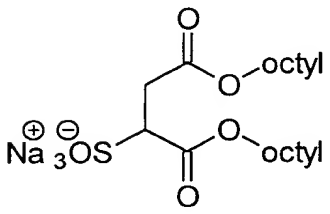
We have surprisingly found that deactivants are specific to the type of dust mite allergen being treated. For example an effective Der-f allergen deactivant will not automatically work effectively as a Der-p allergen deactivant.

We have looked into Der-p allergen deactivants and have found only a select number of deactivants destroy the Der-p allergen, whilst at the same time not leaving a stain.

According to the invention there is provided a method for deactivating a Der-p allergen comprising contacting the allergen with a deactivating effective amount of one or more of deactivants (herein after defined as the deactivant) selected from

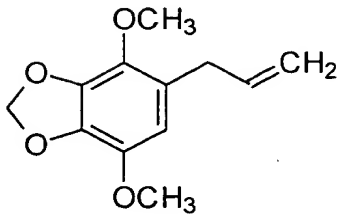
i) cedarwood oil,
ii) hexadecyltrimethylammonium chloride
iii) aluminium chlorohydrate,
iv) 1-propoxy-propanol-2,
v) polyquaternium-10
vi) silica gel ,

vi) silica gel ,
vii) potassium thioglycolate
viii) propylene glycol alginate,
ix) ammonium sulphate,
x) hinokitiol,
xi) glutaraldehyde,
xii) L-ascorbic acid,
xiii) "immobilised tannic acid",(hereinafter defined)
xiv) chlorohexidine,
xv) maleic anhydride,
xvi) hinoki oil,
xvii) a composite of AgCl and TiO_2
xviii) diazolidinyl urea,
xix) 6-isopropyl-m-cresol,
xx) a compound of formula I,



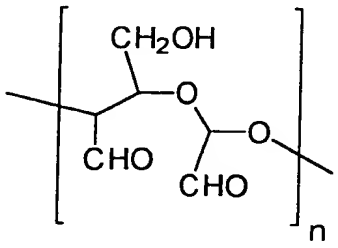
(I)

xxi) a compound of formula II



(II)

xxii) a polymeric compound containing two or more of a recurring unit of the formula III



(III)

where n = 2 to 200.

In this Specification, the definition of the following compounds or compositions is given below:

A compound of formula I is commercially available as Aerosol OT.

A compound of formula II is commercially available as parsley camphor.

Hinoki oil is a mixture of Thujan-3-one, 2-pinene, 3,5,7,3',4' pentahydroflavanone and 1,3,3,-trimethyl-2-norcamphanone.

Cedarwood oil, contains α- and β- cedrene (ca 80%), cedrol (3-14%) and cedrenol. Other sesquiterpenes and some monoterpenes are also present.

Polyquaternium-10 is a polymeric quaternary ammonium salt of hydroxy ethyl cellulose reacted with a

trimethyl ammonium substituted epoxide commercially available as Polymer JR-125.
Silica gel is also known as colloidal silica or silicic acid and is commercially available as Kent.

Hinokitiol is also known as β-thujaplicin.

"Immobilised tannic acid" is tannic acid on polyvinyl pyrrolidone beads. "Immobilised Tannic Acid" is prepared as follows:

100 mg of tannic acid dissolved in water, 50 mg of Polyclar 10 (ISP, Guildford Sumg) polyvinyl pyrrolidone beads were added and stirred for one hour. The beads were filtered off the solution and washed with a few mls of iced water until no colour was seen in the washings. They were then dried in the oven at 50°c.

The composite of silver chloride and TiO_2 is made up of 20% wt/wt AgCl on 80% TiO_2 3-5 μm porous beads.

The amount of deactivant present is from 0.01 - 7%, preferably 0.01 to 3%.

Preferably the amount of deactivant present in such a method is from 0.5 oz to 5 oz per 10 yds^2, more preferably 1 oz per 11 yds^2 of area treated.

Preferably the deactivant is selected from
hinoki oil,
a composite of AgCl and TiO_2,
diazolidinyl urea
6-isopropyl-m-cresol,

N-methyl pyrrolidine
potassium thioglycolate
chlorohexidine
maleic anhydride and
glutaraldehyde
hinokitiol
silica gel
cedarwood oil
1-propoxy-propanol-2
aluminium chlorohydrate
immobilised tannic acid, and
L-ascorbic acid

Most preferably the deactivant is selected from maleic anhydride, glutaraldehyde and diazolidinyl urea.

Further according to the invention there is provided an aerosol composition containing

a) a deactivant (hereinafter the Deactivant) selected from

i) cedarwood oil,
ii) hexadecyltrimethylammonium chloride
iii) aluminium chlorohydrate,
iv) 1-propoxy-propanol-2,
v) polyquaternium-10,
vi) silica gel,
vii) potassium thioglycolate,
viii) propylene glycol alginate,
ix) ammonium sulphate,
x) hinokitiol,
xi) glutaraldehyde
xii) L-ascorbic acid,

xiii) "immobilised tannic acid", (hereinafter defined)
xiv) chlorohexidine,
xv) maleic anhydride,
xvi) hinoki oil,
xvii) a composite of silver chloride and TiO_2
xviii) diazolidinyl urea,
xix) 6-isopropyl-m-cresol,
xx) a compound of formula I, II or III defined above;

b) a propellant and

c) optionally a solvent.

Preferably the amount of deactivant present in such a composition is from 0.01 - 7%, preferably 0.01 to 3%,

Preferably the amount of propellant present in such a composition is 4-50%, more preferably 4 to 30%,

Preferably the amount of solvent present in such a composition is 0 to 99.95, more preferably 0 to 90%, most preferably 20 to 90%.

Preferably the deactivant is selected from

hinoki oil,
a composite of AgCl with TiO_2,
diazolidinyl urea,
6-isopropyl-m-cresol,
N-methyl pyrrolidone
maleic anhydride,
potassium thloglycolate

chlorohexidine,
glutaraldehyde.
hinokitiol
silica gel
cedarwood oil
1-propoxy-propanol-2
aluminium chlorohydrate
immobilised tannic acid, and
L-ascorbic acid

Preferably the propellant is selected from those commercially available, for example C_{1-4} alkanes and hydrochlorofluorocabrons and compressed gases such as nitrogen air and carbon dioxide.

Preferably the solvent is selected from C_{1-6} alcohols (e.g. ethanol) or water.

In addition the composition may also contain one or more of the following

a fragrance, (preferably in an amount of 0 to 5%), more preferably 0 to 2%.

an antimicrobial compound e.g. alkyl dimethyl benzyl ammonium saccharinate (preferably in an amount of 0.01 to 1%)

a surfactant (e.g. Dow Corning 193 Surfactant (preferably in an amount of 0.01 to 1%)

a corrosion inhibitor (e.g. sodium nitrite, sodium benzoate, triethanolamine or ammonium hydroxide (preferably in an amount of 0.01 to 10%),

and/or

a miticide (such as benzyl benzoate, pyrethroid pemethrin, d-allethrin and optionally a synergist such as pipernoyl butoxide (preferably in an amount of 0.1 to 10%).

It has been found that deactivants of the invention have as effective allergen deactivating properties as tannic acid but without the drawback of staining.

The invention will now be illustrated by the following Examples.

The test procedure in Examples 1 to 17 is as follows and is known as the ELISA protocol.

The ELISA protocol for Der-P has been developed as follows as a measure of denaturing property for denaturants.

ELISA Protocol 1

1. Dust is collected from Hoover (a trademark) bags and passed through a series of sieves down to 63 microns.

2. Clean petri dishes are labelled with the chemical to be tested (on the base), three replicates are used for each treatment.

3. Filter paper is used to line each dish and 0.2g of dust is added to each dish onto the filter paper. The lid (or base, as dishes are inverted) is replaced and

the dish is shaken to disperse of dust evenly over the filter paper.

4. 2% aqueous solutions of deactivant was used except for

i) the silver chloride composite is used at 0.05%;
ii) immobilised tannic acid is used as a 1% dispersion;
iii) hinokitol is used at 0.5%.

Water insoluble deactivants are emulsified with surfactant (a sorbitol oleate surfactant (i.e. Tween)).

5. The dust is sprayed with the corresponding treatment, 2 sprays are required for sufficient coverage(1 spray = 1.5ml).

6. Leave uncovered at room temperature, in well aerated room, until filter paper is dry. This can take up to 4 hours.

7. Empty dust in epindorfs labelled according to treatment.

8. Add 1 ml of 5% Bovine Serum Albumen Phosphate Butter Saline - Tween BSA-PBS-T to each epindorf (5 times the weight of dust) (20ml of BSA-PBS-T =1g of BSA in 20ml of PBS-T).

9. Leave overnight in the fridge.

10. Centrifuge for 5 minutes at 13,000 rpm.

11. Decant the supernatant into a new epindorf

labelled according to treatment.

12. Centrifuge again for 5 minutes at 13,000 rpm.

13. Make up dilution's of 1:10 and 1:100 by adding 100ul of neat solution to 900ul of 1% BSA-PBS-T (1:10). This is repeated using 100ul of 1:10 dilution and add to 900ul of 1% BSA-PBS-T for 1:100 dilution.

ELISA Protocol 2 for Der p 1: Indoor Biotechnologies

1. Prepare samples and dilutions as in protocol 1.

2. Prepare 500 ml of 50 mM carbonate/bicarbonate buffer by dissolving **0.795g** Na_2CO_3 and **1.465g** $NaHCO_3$ in **500ml** of distilled water. Check the pH is at 9.6. (This solution is kept in the fridge in a conical flask).

3. Monoclonal antibody, this is kept in the freezer. (1µg per well ; 11ml is needed) has to be added to the buffer using the following method this is applied to the ELISA plate:
   - **11ml** of carbonate/bicarbonate buffer is added to the dispensing tray.
   - **11µl** of Der P 1 monoclonal antibody (Stored in freezer, epindorf in use is in the fridge) is added to the buffer. To ensure that all the antibody is removed from the tip, wash out the pipette tip by sucking up and down I the buffer solution, gently stirring to mix thoroughly.

4. Pipette **100µl** of the antibody solution into each well of the microtiter plate, cover with a plate sealer and leave overnight at 4°C.

5. Empty the plate by quickly inverting it over the sink, then dry by banging on a stack of paper towels.

6. Add **200µl** of wash buffer to each well: PBS/0/05% tween (PBS-T).

7. Repeat stages 5 and 6 once more (making a total of 2 washes).

8. Make sure all the wells are dry, then add **100µl** of 1% BSA-PBS-T. Replace the plate sealer and incubate for **1 hour** at room temperature*.

9. Repeat steps 5 to 7 (2 washes).

10. *During the hour incubation period, prepare the allergen standards at dilutions between 125 and 1 ng/ml Der f 1:

- Add **25µl** of allergen standard (kept in the **fridge** in polystyrene box) to **475µl** of 1% PBS-BSA-T and mix thoroughly - labelled '125'.
- **250µl** of 1% PBS-BSA-T is added 7 further epindorfs which are labelled 62.5, 31.25, 15.63, 7.61, 3.9, 1.95 and 0.98.
- **250µl** is taken from the 1st epindorf (labelled 125) and transferred to the next (labelled 62.5). This is mixed thoroughly.

- Using a new pipette tip, **250µl** is removed from epindorf labelled 62.5 and transferred to 31.25, this procedure is continued down to the 0.98 concentration (125, 62.5, 31.25, 15.63, 7.61, 3.9, 1.95, 0.98)
- In total 475+(250x7)=2.3ml : 0.023g of BSA added to 2.3ml of PBS-T.

11. Add **100µl** aliquots of the allergen sample to the plate along with the standard allergen samples for the reference curve in duplicate. The standards usually go in the first two columns on the left hand side, with the least concentrated on top. Incubate for 1 hour.

12. Follow stages 5 to 6, completing a total of 5 washes.

13. Pore **11ml** of 1% BSA-PBS-T(0.11g of BSA to 11ml of PBS-T) to the dispensing tray. Add **11µl** of the biotinylated monoclonal antibody (fridge) and mix thoroughly.

14. Pipette **100µl** into each well and incubate for 1 hour at room temperature.

15. Empty plate and wash as described in stage 12. (5 washes).

16. Add **11ul** of Streptavidin (freezer) to **11ml** of 1%BSA-PBS-T. Pipette **100µl** into each well and incubate for 30 minutes. Reserve any remaining solution in a vial.

17. Empty plate and wash as described in stage 12 (5 washes).

18. Make a solution of OPD, by putting the two tablets (in silver and gold foil) into 20 ml of distilled water (in a glass vial). Shake quite vigorously in the dark until the tablets have dissolved (Wrap the vial up either in tin foil or paper towel).

19. Add a small amount to the remaining solution from stage 16. Wait for a colour change (positive reaction). Add **200µl** to each well and incubate for a minimum of 30 minutes in the dark.

20. Read the plate at 450nm/405nm if filter not available.

Examples 1 to 26

The deactivants, as set out in the following table, were treated according to the above procedure and the results are as given below. Tannic acid was used as a comparator. What was measured after treatment with deactivant ant tannic acid was the amount of allergen active remaining after treatment. Also, the ratio of amount of active allergen remaining after treatment with deactivant is also given for some of the deactivants and active allergen remains after treatment with tannic acid.

Table

Example	Deactivant	Amount of active Allergen remaining after deactivant treatment	Amount of active Allergen remaining after no deactivant treatment but only vaccuming
1	Glutaraldehyde	816	3375
2	Polymeric dialdehyde	2792	3375
3	Cedarwood oil	3375	6000
4	hexadecyltrimethylammonium chloride	2863	4992
5	Aluminium chlorohydrate	978	4992
6	1-propoxy-propanol-2	1233	4992
7	Silica Gel (Kent)	1540	4992
8	polyquaternium-10 (Polymer JR-125)	5463	6250
9	Propylene glycol alginate	3781	6250
10	Ammonium sulphate	2325	6250
11	Potassium thioglycolate	3092	3375

Example	Deactivant	Amount of active Allergen remaining after deactivant treatment	Amount of Allergen remaining after no deactivant treatment
12	Hinokitol (0.5%)	2058	3375
13	L-Ascorbic Acid	1438	5642
14	Immobilised Tannic Acid	1125	5642
15	Aerosol OT	4494	5642
16	Chlorohexidine	2281	4450
17	Parsley Camphor	2581	4450
18	Maleic anhydride	783	4450
19	Hinoki oil	1644	3400
20	Composite of AgCl and TiO_2	1632	3400
21	Thymol	1500	3400

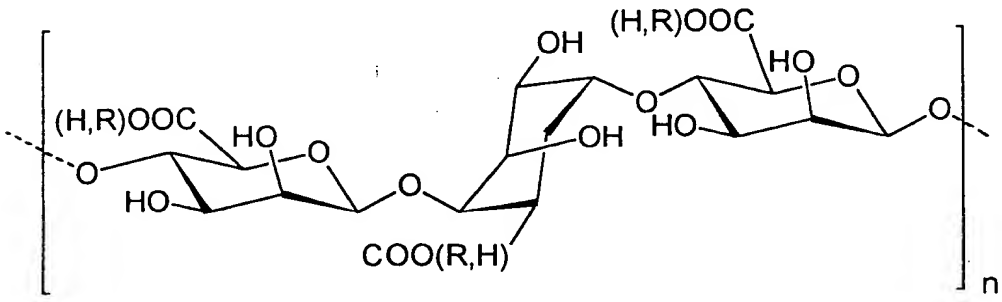
Further samples were tested as above and compared against tannic acid. The ratio of actives remaining after deactivant treatment and actives remaining after tannic acid treatment are given below:

Deactivant	Ratio of actives remaining after deactivant treatment over those remaining after tannic acid treatment
Germall II	1.5
N-methyl pyrrolidine	4.0
Hinoki Oil	4.0
Silver chloride/T_1O_2	3.5
Thymol	4.0
Chlorohexidine	3.0
Maleic anhydride	1.0
Glutaraldehyde	1.5

In the table certain compounds are used that are defined as follows:

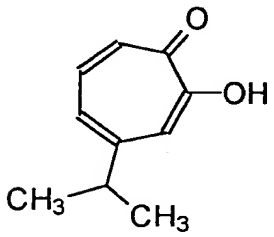
Polymeric dialdehyde is a compound containing 2-200 recurring units of the formula III.

Propylene glycol alginate is

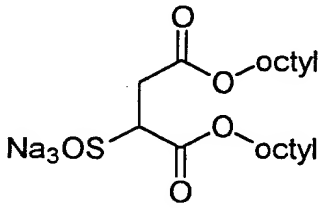


Chlorohexadene is 1,1'-hexamethylene bis [5-(4-chlorophenyl)-biguanide

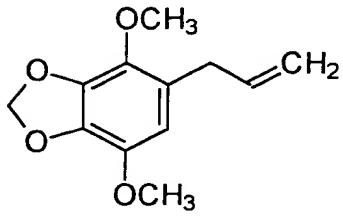
Hinokitiol is ß-thujaplin, a compound of the formula



Aerosol OT is a compound of the formula



Parsley extract is a compound of the formula



Hinoki oil is a mixture of Thujan-3-one, 2-pinene, 3,5,7,3',4' pentahydroflavanone and 1,3,3,-trimethyl-2-norcamphanone.

Germall II is diazolidinyl urea and

Thymol is 6-isospropyl -m- cresol

Examples 27 to 30

The following formulations can be made up as a compositions for use as an aerosol for deactivating der-p allergens).

EXAMPLE 27

Raw Ingredient Description By Weight	Item Classification	%
Anhydrous Ethanol (SD Alcohol 40)	Solvent	79.646
Alkyl dimethyl benzyl ammonium saccharinate	Cationic Surfactant	0.106
Corrosion Inhibitor		0.192
Corrosion Inhibitor		0.192
Corrosion Inhibitor		0.096
Deionized Water	Water/Solvent	15.768
Carbon Dioxide	Propellant	4.000
TOTAL		100.000

EXAMPLE 28

Raw Ingredient Description by Weight	Item Classification	%
Anhydrous Ethanol (SD Alcohol 40)	Solvent	* 57.000
Fragrance#17	Fragrance	0.0500
Dow Corning 193 Surfactant	Surfactant	0.025
Corrosion Inhibitor		0.100
Corrosion Inhibitor		0.100
Deionized Water	Water/solvent	* 14.725
NP-40/Butane 40	Hydrocarbon propellant	28.000
TOTAL		100.000

* = May replace with 95% Ethanol (SD Alcohol 40) at 61.755% by weight and 9.970% by weight Deionized water

EXAMPLE 29

Raw Ingredient Description by Weight	Item Classification	%
Anhydrous Ethanol (SD Alcohol 40)	Solvent	79.646
Benzyl Benzoate - an acaricide	Active/ester	4.600
Alkyl dimethyl benzyl ammonium saccharinate	Cationic Surfactant	0.106
Corrosion Inhibitor		0.192
Corrosion Inhibitor		0.192
Corrosion Inhibitor		0.096
Deionized Water	Water/solvent	11.168
Carbon Dioxide	Propellant	4.000
TOTAL		100.000

EXAMPLE 30

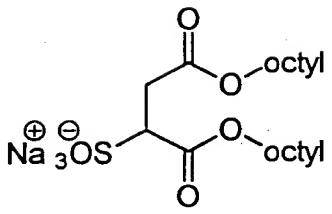
Raw Ingredient Description by weight	Item Classification	%
Anhydrous Ethanol (SD Alcohol 40)	Solvent	*57.000
Benzyl Benzoate	Active/ester	4.600
Fragrance#17	Fragrance	0.0500
Dow Corning 193 Surfactant	Surfactant	0.025
Corrosion Inhibitor		0.100
Corrosion Inhibitor		0.100
Deionized Water	Water/solvent	*10.125
NP-40/Butane 40	Hydrocarbon propellant	28.000
TOTAL		100.000

* = May replace 95% Ethanol (SD Alcohol 40) at 61.755% by weight and 5.370% by weight Deionized water.

CLAIMS

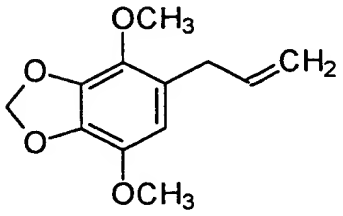
1. A method for deactivating a Der-p allergen comprising contacting the allergen with a deactivating effective amount of one or more of deactivants (herein after defined as the Deactivant) selected from

i) cedarwood oil,
ii) hexadecyltrimethylammonium chloride
iii) aluminium chlorohydrate,
iv) 1-propoxy-propanol-2,
v) polyquaternium-10
vi) silica gel ,
vii) potassium thioglycolate
viii) propylene glycol alginate,
ix) ammonium sulphate,
x) hinokitiol,
xi) glutaraldehyde,
xii) L-ascorbic acid,
xiii) "immobilised tannic acid", (hereinafter defined)
xiv) chlorohexidine,
xv) maleic anhydride,
xvi) hinoki oil,
xvii) a composite of AgCl and TiO_2
xviii) diazolidinyl urea,
xix) 6-isopropyl-m-cresol,
xx) a compound of formula I,



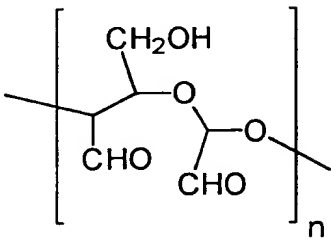
(I)

xxi) a compound of formula II



(II)

xxii) a polymeric compound containing two or more of a recurring unit of the formula III



(III)

where n = 2 to 200

2. A method according to Claim 1 in which the amount of Deactivant present is from 0.5 oz to 5 oz per 10 yds.

3. A method according to Claim 1 or Claim 2 in which the Deactivant is selected from

hinoki oil,
a composite of AgCl with TiO_2,
diazolidinyl urea and
6-isopropyl-m-cresol,

chlorohexidine,
N-methylpyrrolidone
potassium thioglycolate and
maleic anhydride
glutaraldehyde
hinokitiol
silica gel
cedarwood oil
1-propoxy-propanol-2
aluminium chlorohydrate
immobilised tannic acid, and
L-ascorbic acid

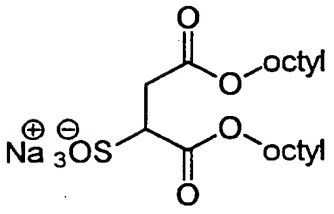
4. An aerosol composition containing

a) a deactivant selected from
   i) cedarwood oil,
   ii) hexadecyltrimethylammonium chloride
   iii) aluminium chlorohydrate,
   iv) 1-propoxy-propanol-2,
   v) polyquaternium-10
   vi) silica gel ,
   vii) potassium thioglycolate
   viii) propylene glycol alginate,
   ix) ammonium sulphate,
   x) hinokitiol,
   xi) glutaraldehyde
   xii) L-ascorbic acid,
   xiii) "immobilised tannic acid", (hereinafter defined)
   xiv) chlorohexidine,
   xv) maleic anhydride,
   xvi) hinoki oil,
   xvii) a composite of silver chloride and TiO_2

xviii) diazolidinyl urea,

xix) 6-isopropyl-m-cresol,

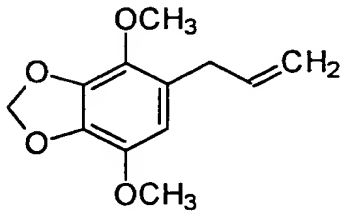
xx) a compound of formula I,



(I)

and

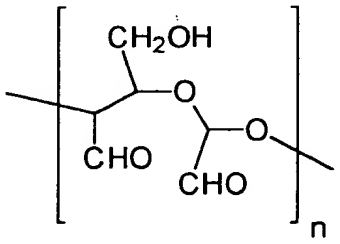
xxi) a compound of formula II



(II)

and

xxii) a polymeric compound containing two or more of a recurring unit of the formula III



(III)

where n = 2 to 200 (hereinafter defined as the Deactivant).

b) a propellant and

c) optionally a solvent.

6. A composition according to Claim 5 in which the amount of Deactivant present in such a composition is from 0.01 to 7%, the amount of propellant present in such a composition is 0.05 to 3%, and the amount of solvent present in such a composition is 0 to 99.95%.

7. A composition according to Claim 5 or Claim 6 in which the Deactivant is selected from

hinoki oil,
a composite of AgCl with TiO_2,
diazolidinyl urea,
6-isopropyl-m-cresol,
chlorohexidine,
maleic anhydride,
N-methyl pyrrolidine
potassium thioglycolate
hinokitiol
silica gel
cedarwood oil
1-propoxy-propanol-2-01
aluminium chlorohydrate
immobilised tannic acid, and
L-ascorbic acid

8. A composition according to any one of Claims 4 to 7 in which the propellant is selected from C_{1-4} alkane and carbon dioxide.

9. A composition according to any one of Claims 4 to 8 in which the solvent is selected from C_{1-6} alcohols (e.g. ethanol) or water.

10. A composition according to any one of Claims 4 to 9 in which the composition may also contain one or more of the following

a fragrance,
a surfactant (e.g. Dow Corning 193 Surfactant
an antimicrobial agent (e.g.alkyl dimethyl benzyl ammonium saccharinate),
a corrosion inhibitor (e.g. sodium nitrite, sodium benzoate, triethanolamine and ammonium hydroxide), and/or
a miticide (such as benzyl benzoate).

11. A method for denaturing a Der-p allergen substantially as herein described with reference to any one of the Examples.

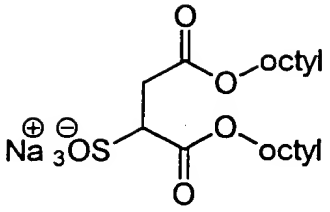
12. A composition substantially as herein described with reference to any one of the Examples.

ABSTRACT

Improvements in or relating to organic compositions

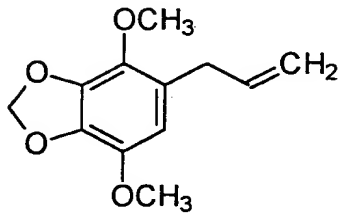
A method for deactivating a Der-p allergen comprising contacting the allergen with a deactivating effective amount of one or more of deactivants (herein after defined as the Deactivant) selected from

i) cedarwood oil,
ii) hexadecyltrimethylammonium chloride
iii) aluminium chlorohydrate,
iv) 1-propoxy-propanol-2,
v) polyquaternium-10
vi) silica gel ,
vii) potassium thioglycolate
viii) propylene glycol alginate,
ix) ammonium sulphate,
x) hinokitiol,
xi) glutaraldehyde
xii) L-ascorbic acid,
xiii) "immobilised tannic acid", (hereinafter defined)
xiv) chlorohexidine,
xv) maleic anhydride,
xvi) hinoki oil,
xvii) a composite of silver chloride and TiO_2
xviii) diazolidinyl urea,
xix) 6-isopropyl-m-cresol
xx) a compound of formula I



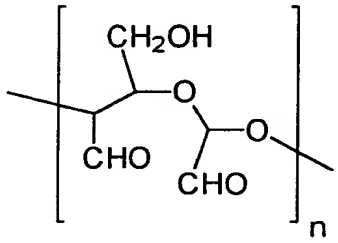
(I)

xxi) a compound of formula II



(II)

xxii) a polymeric compound containing two or more of a recurring unit of the formula III



(III)

where n = 2 to 200

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